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The role of fairness in modelling customer choice

Christine Mathies [a,*], Siegfried P. Gudergan [b]

[a] University of New South Wales, School of Marketing, Sydney, NSW 2052, Australia
[b] University of Technology, Sydney, School of Marketing, City Campus Haymarket, Broadway, NSW 2003, Australia

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ABSTRACT

Some business practices of service firms have the potential to negatively affect customer demand because they are perceived as unfair. We discuss how fairness concerns can influence customer choice, and propose a conceptualisation embedded in expected utility theory that accounts for fairness judgments. The intended contributions are (1) to advance the literature on customer decision making by combining expected utility theory with justice (fairness) theory; (2) to provide a conceptual framework capturing fairness in customer choice; and (3) to propose a research agenda concerning fairness in customer decision making.

1. Introduction

Customers evaluate price and product/service attributes to assess the value or utility of products and services and to make their purchase choices. Some or all of these attributes can be influenced by marketing and management practices that customers perceive as unfair. Perceived fairness is particularly prevalent in (but not limited to) service industries, as the very nature of services require marketing strategies based on price and product discrimination and customisation. The most extensively researched 'unfair' attribute in a services context is price, where price discrimination and price bundling, yield management, and reference prices are the main culprits in causing perceived unfairness (Bolton et al., 2003; Choi and Mattila, 2006; Cox, 2001; Kimes, 1994; Maxwell, 2002; Xia et al., 2004). Because of the intangible nature of services, perceived fairness is particularly important for the credibility of the service provider (Seiders and Berry, 1998), and can also be caused by a range of non-price attributes. For example, special product bundles to attract new telecommunication customers often disadvantage existing customers; reservation and queuing systems may favour some customers and discriminate against others; or a frequent flyer member might be unable to redeem award points for a free flight. Service failure and subsequent recovery efforts are also a main source for perceived unfairness in services and have been the focus of fairness research in services (Patterson et al., 2006; McColl-Kennedy and Sparks, 2003). Managers of service firms need to better understand how perceived unfair marketing practices may cause confusion and fairness concerns, alienate customers, and ultimately change customers' purchase choices.

The basic conceptualisation of customer choice, within a traditional random utility framework, disregards the effects of perceived unfairness on customers' utility assessments of a service firm and its offerings, as well as the resulting willingness to (re-)purchase these offerings (McGill and van Ryzin, 1999). Any marketing activity that customers perceive as unfair influences their evaluation of a service and the likelihood to (re-)purchase, and ultimately dampens the overall demand for a particular service. However, research and industry practice has only slowly reacted to this issue.

This paper works to fill this void and addresses two research questions. First, how can we assess the demand effects of unfair marketing practices in a services context? Second, what role do fairness issues play within a utility model of customer choice? The intended contributions of this conceptual work are threefold. First, we outline different avenues of how perceived fairness affects customers' utility judgments. Independent of the decision making context, fairness may account for a large part of deviations from expected utility (Konow, 2003) and influence some latent constructs such as attitudes and perceptions that play a role in choice behaviour (Ben-Akiva et al., 1999). We summarise four different ways in which fairness matters can gain leverage in customer decision making. Second, we develop one of the proposed options further and show how fairness adjustments can be incorporated into a standard utility model to specify the demand effects of potentially unfair practices. Third, we highlight how our conceptualisation helps service firms understand how to reduce perceived unfairness, and conclude with a proposed research agenda for incorporating unfairness in customer choice models that goes beyond price fairness.

* Corresponding author. Tel.: +61 2 9385 3376; fax: +61 2 9663 1985.
E-mail addresses: c.mathies@unsw.edu.au (C. Mathies), Siggi.gudergan@uts.edu.au (S.P. Gudergan).

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2. Estimating demand under fairness considerations

Expected utility theory assumes that consumers objectively assess their options and select the alternative with the highest utility. Price and product attributes x determine this utility (Thaler, 1980). Let A denote the number of brands available to customer n, who obtains a certain level of utility $U_{nj} = v_{nj} + \varepsilon_{nj}$ from each mutually exclusive alternative j, $\epsilon A = [1, \ldots, J]$, where v_{nj} is the systematic and ε_{nj} the random component of utility (Louviere et al., 2000). Customer n chooses alternative i if and only if $U_{in} > U_{jn}, \forall j \neq i \in A$. The probability that customer n chooses alternative i is therefore $P_{in} = P[(\varepsilon_{jn} - \varepsilon_{in}) < (v_{in} - v_{jn})], \forall j \neq i$. Assuming independence and identical distribution of the random components, this choice probability can be rewritten as the multinomial logit model (McFadden, 1986), i.e., $P_{ni} = \frac{e^{v_{ni}}}{\sum_{j \in A} e^{v_{nj}}}$.

Perceived unfairness may decrease perceived utility and increase negative emotions and therefore lower current and future willingness to (re-)purchase (Maxwell, 2002; Huppertz et al., 1978; Bolton et al., 2000). We apply a working definition of fairness as the judgment of an outcome and the process used to arrive at this outcome as reasonable, acceptable, or just (Bolton et al., 2003; Xia et al., 2004). We put forward four ways in which fairness might influence the level of utility u_{ni} and the choice outcome P_{ni}, which we explain in some detail below. First, fairness can act as a pre-screening mechanism to delete seemingly unfair offers from the set of considered purchase options. Second, it can decrease the utility of an offer through a fairness adjustment that results from a reference point comparison. Third, fairness might change the decision rules applied to the purchase choice. Fourth, fairness could manifest itself as an increased choice variability.

2.1. Fairness in choice set formation

Previous research suggests that customers engage in a two-stage decision process, in which they first form a set of options to be considered and then make their choice from this consideration set (see for example Swait and Ben-Akiva, 1987). Screening can involve decisions about whether alternative i should be evaluated at all and whether it should be considered for purchase choice (Hauser and Wernerfelt, 1990; Mehta et al., 2003). Accordingly, customers may consider only a subset $C \subset A$ of all available service providers and their offerings as purchase possibilities, prior to applying compensatory utility maximizing decision rules.

Alternatives may be eliminated from the consideration set if customers perceive the practices and/or resultant outcomes as unfair. Similar to brand credibility (Erdem et al., 2004), fairness perceptions of a specific provider or alternative may affect consideration set formation and subsequent choice, assuming consideration takes place. Two competing paradigms describe how consideration sets are manifested in customers' expected utilities and choice. One view models consideration as a distinct step in the choice process (Swait and Ben-Akiva, 1987; Erdem et al., 2004; Roberts and Lattin, 1991), such that the probability of customer n choosing alternative $i \in C$ after forming the consideration set $C \subset A$ is:

$$P_{ni} = \frac{e^{x'_n \beta_i}}{\sum_{j \in C} e^{x'_n \beta_j}}. \quad (1)$$

An alternative viewpoint argues that there is no need to model choice as a two-stage process of consideration and choice conditional on consideration, because any factors or decision rules that influence the consideration set formation are fully reflected in the customer's utility functions (Horowitz and Louviere, 1995). In this case, the choice probability would simply be the multinomial logit model:

$$P_{ni} = \frac{e^{x'_n \beta_i}}{\sum_{j \in A} e^{x'_n \beta_j}}.$$

2.2. Fairness in preference formation and utility assessment

Random utility theory assumes that people assess their options and select the alternative with the highest utility according to its price and product attributes (McFadden, 1986; Hensher and Johnson, 1981). Customers' real-life choices, however, regularly violate the predictions of expected utility theory (Ben-Akiva et al., 1999; Fitzsimons et al., 2002), and fairness is one element that can explain an important portion of these deviations (Konow, 2003). Thus, explanations of choices might be more accurate if they integrate theories that account for decision framing and reference points, such as Kahneman and Tversky (1979) prospect theory or the more general reference-dependency theory (Herne, 1998; Munro and Sugden, 2003; Sugden, 2003; Tversky and Kahneman, 1991), which comprehensively addresses systematic deviations from the principle of utility maximisation and recognises that a coding phase precedes the actual evaluation and choice phases.

Customers' utility assessments and choices are influenced by a perceived fairness component, which can be interpreted in two ways. First, fairness judgments might adjust the attribute-specific utility by a multiplicative factor, that is, fairness is a moderating lens of preferences. Second, fairness judgments could add or deduct a fairness utility component to or from the attribute-specific utility component, i.e., directly change utility. Selecting the correct model is often difficult, and depends on prior knowledge about the distribution of the fairness judgments and in how far the two models produce similar results. Hence additive effects are much more widely used in the existing literature and are easier to implement (Menzefricke, 1979). We therefore follow the convention of existing research on reference price effects to assume an additive effect for our reference-dependent fairness adjustments (Erdem et al., 2001), which means the systematic utility component can be rewritten as:

$$v_{ni} = \alpha_{ni} + \beta_{1nik} X'_{nik} + \beta_{2ni} FA_{ni}, \quad (2)$$

where α_{ni} is a customer- and alternative-specific constant, $\beta_{1ni} X'_{ni}$ is the utility component derived from alternative's k price and product/service attributes x_{nik} (some of which are influenced by unfair practices), and FA_{ni} captures the utility changes created by fairness-based coding of these attributes x_{ni}.

2.3. Impact of fairness on decision rules

Conceptualising fairness as an adjustment to preferences, whether multiplicative or additive, is consistent with the assumptions of compensatory decision making, and simply considers fairness as an additional factor in a customer's utility maximisation effort. Another possibility is that fairness concerns alter decision heuristics, such that customers diverge from the principle of compensatory decision making and apply different decision rules.

Johnson and Payne (1985) note that people employ a variety of cognitive processes to reach a decision, depending on the characteristics of the choice task. Their underlying assumption posits that different heuristics require different levels of cognitive effort from the decision maker but also create varying levels of decision accuracy. The willingness of decision makers to engage intensively in the decision process therefore depends on the ratio and importance of effort versus accuracy, constraints, and factors of the task environment (Payne et al., 1992).

Distressing situations associated with a decision can be just such a factor. If consumers are exposed to a specific stimulus in